

CLAIMS

We claim:

1. A security tag comprising:
 - 5 a tag body;
 - an attaching means for attaching said tag body to an article;
 - and
 - 10 a locking means for releasably preventing said attaching means from being removed from said article wherein said locking means is provided for mechanically or magnetically released said attaching means for detaching said tag body from said article.
- 15 2. The security tag of claim 1 wherein:
 - said locking means further includes a plurality of balls for
 - 20 tightly holding to said attaching means for releasably preventing said attaching means from being removed from said article.
- 25 3. The security tag of claim 2 wherein:
 - said locking means further includes a mechanical unlocking
 - means for applying a mechanical force to release said balls
 - from said attaching means whereby said attaching means
 - may be released and detached from said tag body.
- 30 4. The security tag of claim 2 wherein:
 - said locking means further includes a magnetic unlocking
 - means for applying a mechanical force to release said balls
 - from said attaching means whereby said attaching means
 - 35 may be released and detached from said tag body.

5. The security tag of claim 2 wherein:

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said locking means further includes a ball tightening and loosening means for tightening said balls to said attaching means; and

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said locking means further includes a mechanical unlocking means for applying a mechanical force to said ball tightening and loosening means for loosening said balls from said attaching means whereby said attaching means may be released and detached from said tag body.

6. The security tag of claim 2 wherein:

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said locking means further includes a ball tightening and loosening means for tightening said balls to said attaching means; and

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said locking means further includes a magnetic unlocking means for applying a mechanical force to release said balls from said attaching means whereby said attaching means may be released and detached from said tag body.

7. The security tag of claim 5 wherein:

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said ball tightening and loosening means further includes a ball surrounding surface defining a restrict space and an expanded space for forcing said balls into said restrict space for tightening said balls to said attaching means; and

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said mechanical unlocking means further applying a mechanical force to move said balls to said expanded space of said ball tightening and loosening means for loosening said balls from said attaching means whereby said attaching means may be released and detached from said tag body.

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8. The security tag of claim 6 wherein:

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said ball tightening and loosening means further includes a ball surrounding surface defining a restrict space and an expanded space for forcing said balls into said restrict space for tightening said balls to said attaching means; and

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said magnetic unlocking means further applying a magnetic force to move said balls to said expanded space of said ball tightening and loosening means for loosening said balls from said attaching means whereby said attaching means may be released and detached from said tag body.

9. The security tag of claim 7 wherein:

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said ball tightening and loosening means further includes ball holding cup having a plurality of holes for each of said balls surrounded by said ball surrounding surface wherein said locking means pressing said ball holding cup for forcing said balls into said restrict space for tightening said balls to said attaching means; and

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said mechanical unlocking means further applying a mechanical force to move said ball holding cup together with said balls to said expanded space of said ball tightening and loosening means for loosening said balls from said attaching means whereby said attaching means may be released and detached from said tag body.

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10. The security tag of claim 8 wherein:

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said ball tightening and loosening means further includes ball holding cup having a plurality of holes for each of said balls surrounded by said ball surrounding surface wherein said locking means pressing said ball holding cup for forcing said balls into said restrict space for tightening said balls to said attaching means; and

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said magnetic unlocking means further applying a magnetic force to move said ball holding cup together with said balls to said expanded space of said ball tightening and loosening means for loosening said balls from said attaching means whereby said attaching means may be released and

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detached from said tag body.

11. The security tag of claim 1 further comprising:

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a mechanical probe finger for pushing and applying a mechanical force onto said locking means to release said attaching means whereby said attaching means may be released and detached from said tag body.

12. The security tag of claim 1 further comprising:

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a magnet for applying a magnetic force onto said locking means to release said attaching means whereby said attaching means may be released and detached from said tag body.

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13. A security tag comprising an attaching means for attaching said tag to a protected article further comprising:

5 a locking means for locking said attaching means for
releasably preventing said attaching means from being
removed from said protected article wherein said locking
means is provided to be unlocked for releasing said
attaching means from said tag by one of at two different
kinds of unlocking means.

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14. The security tag of claim 13 wherein:

15 said locking means is provided to be unlocked by a
mechanical unlocking and a magnetic unlocking means.

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15. The security tag of claim 13 further comprising:

20 a mechanical probe finger for pushing and applying a
mechanical force onto said locking means to release said
attaching means whereby said attaching means may be
released and detached from said tag body.

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16. The security tag of claim 13 further comprising:

25 a magnet for applying a magnetic force onto said locking
means to release said attaching means whereby said
attaching means may be released and detached from said tag
body.

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17. The security tag of claim 13 wherein:

35 said locking means further includes a plurality of balls for
tightly holding to said attaching means for releasably
preventing said attaching means from being removed from
said article.

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18. The security tag of claim 13 wherein:

5 said locking means further includes a mechanical unlocking means for applying a mechanical force to release said balls from said attaching means whereby said attaching means may be released and detached from said security tag.

19. The security tag of claim 13 wherein:

10 said locking means further includes a magnetic unlocking means for applying a magnetic force to release said balls from said attaching means whereby said attaching means may be released and detached from said security tag.

15 20. A method for protecting an article by using an attaching means for attaching a security tag to a protected article further comprising:

20 preventing said attaching means from being removed from said protected article by releaseably locking said attaching means and unlocking and releasing said attaching means from said tag by either one of at two different kinds of unlocking means.

25 21. The method of claim 20 wherein:

30 said step of locking said attaching means and then unlocking said attaching means by either of at least two different kinds of unlocking means further comprising a step of unlocking said attaching means by either a mechanical unlocking means and a magnetic unlocking means.

22. The method claim 21 further wherein:

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said step of unlocking said attaching means by a mechanical unlocking means further comprising a step of applying a mechanical probe finger for pushing and applying a mechanical force onto said locking means to release said attaching means whereby said attaching means may be released and detached from said tag body.

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23. The method of claim 21 further comprising:

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said step of unlocking said attaching means by a magnetic unlocking means further comprising a step of applying a magnet for applying a magnetic force onto said locking means to release said attaching means whereby said attaching means may be released and detached from said tag body.

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24. The method of claim 21 wherein:

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said step of releasably locking said attaching means further comprising a step of employing a plurality of balls for tightly holding to said attaching means for releasably preventing said attaching means from being removed from said article.

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25. The security tag of claim 24 wherein:

said step of unlocking said attaching means further comprising a step of employing a mechanical unlocking means for applying a mechanical force to release said balls from said attaching means whereby said attaching means may be released and detached from said security tag.

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26. The security tag of claim 13 wherein:

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said step of unlocking said attaching means further comprising a step of employing a magnetic unlocking means for applying a magnetic force to release said balls from said attaching means whereby said attaching means may be released and detached from said security tag.